

SERVICE REPRESENTATIVE'S REPORT

PRATT AND WHITNEY AIRCRAFT
EAST HARTFORD 8, CONNECTICUT

REPORT NO.
T-74 01

DATE
11/16/64

PAGE
1 of 1

LOCATION GG/Convair, San Diego, Calif.		REPRESENTATIVE Marshall T. Holbrooke		PWA NO. 927	
<input type="checkbox"/> LINE <input type="checkbox"/> JEFM <input type="checkbox"/> O'HAUL	OVER-HAUL NO.	ENGINE TYPE AND MODEL T-74	OPERATOR AND ACTIVITY	ENGINE NO.	This space for office use only.
		AIRCRAFT TYPE AND NO. Convair 440	PART NO.	Do not write in this space	
		COIN			
QUANTITY	TOTAL PART(S) TIME	ENGINE TIME RUN TOTAL NEW	Do not write in this space	ENG. POS.	FAILURE DATE MONTH YEAR
ENGINE DISPOSITION ("X" all applicable categories)					
<input type="checkbox"/> ENGINE REMOVED	<input checked="" type="checkbox"/> RETURNED TO SERVICE	<input type="checkbox"/> CONVENIENCE	<input checked="" type="checkbox"/> ENGINE NOT REMOVED	<input type="checkbox"/> PERIODIC INSPECTION	<input type="checkbox"/> TIME

MISCELLANEOUS

1. Preparation of COIN for Flight.

During the month of October I spent two full days and two half days on the Convair model 440 T-74 powered COIN airplane.

During these visits, Mr Fred Cowley of BAC Ltd. was contacted and he in turn has been briefing me on the maintenance and operation of the engine.

As you know, the COIN has now completed approx. 10 taxi tests and several hours of engine ground runs. To date the chief engine problems have been mild instability at max powers and improper torque readings. The latter problem is suspected to be in the indicating system and is being investigated further.

As of approx. two weeks ago the airplane has been in the structural lab. investigating lateral control problems in the empennage. This investigation has caused a delay in the first flight.

Today it was learned that Convair hopes to attempt a first flight tomorrow (Nov. 16). Should they succeed in this, the airplane will fly about 40 min. and then land at NAS North Island and then operate out of there until FAA gives Convair a limited flight certificate to operate out of Lindbergh Field.

cc: ECU
BAC Ltd.
H. McVaken

SERVICE REPRESENTATIVE'S REPORT

PRATT AND WHITNEY AIRCRAFT
EAST HARTFORD, CONNECTICUT

REPORT NO.

DATE

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2/16/65

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LOCATION San Diego, Calif.		REPRESENTATIVE Marshall D. Holbrooke		PWA NO. 637	
X One <input type="checkbox"/> LINE <input type="checkbox"/> JEFM <input type="checkbox"/> O'HAUL	OVER-HAUL NO.	ENGINE TYPE AND MODEL PT6A-17	OPERATOR AND ACTIVITY	ENGINE NO. X221CW	This space for office use only.
	AIRCRAFT TYPE AND NO. Convair COIN Model 48	PART NO.	Do not write in this space		
	FAILURE DATE MONTH YEAR				
QUANTITY	TOTAL PART(S) TIME	ENGINE TIME RUN TOTAL	Do not write in this space	ENG. POS. 1	
		Now 3:12			

ENGINE DISPOSITION ("X" all applicable categories)

☒ ENGINE REMOVED
 ☐ RETURNED TO SERVICE
 ☐ CONVENIENCE
 ☐ ENGINE NOT REMOVED
 ☐ PERIODIC INSPECTION
 ☐ TIME

1. Convair Model 48 Status

During third taxi test on Convair Model 48 airplane with latest engines, both engines were reversed. The right propeller went into reverse successfully, while the left went into full feather. The pilot was able to control the aircraft and to stop it with no damage to the aircraft.

The aircraft was returned to the ramp and a very short engine run was made and it was found that main oil pressure had dropped to 30/33 psi. The main oil screen was found heavily contaminated with aluminum chips. No oil contamination was found in the gas generator.

The power section was removed and one oil transfer tube was found sheared and the other badly damaged.

The power section was returned to Montreal where further investigation indicated the transfer ring had seized to the shaft.

It is understood that Canadian P&W is modifying the transfer ring by increasing the clearance and silver plating it.

It is also understood that the transfer tubes are to be changed from aluminum to steel.

Because of the above failure Canadian P&W have decided to change the entire left engine for fear of contamination of the gas generator section also. Further, the right engine power section is to be replaced with a modified section prior to further airplane test.

Replacement engine and power section have as yet not been received but it is hoped to have replacements by 2/20/65.

CC: KCO

H. McHaken

SERVICE REPRESENTATIVE'S REPORT

PRATT AND WHITNEY AIRCRAFT
EAST HARTFORD, CONNECTICUT

REPORT NO.

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LOCATION Convair, San Diego, Calif.		REPRESENTATIVE Marshall, Albrooke		PWA NO. 657	
<input type="checkbox"/> LINE <input type="checkbox"/> JEFM <input type="checkbox"/> O'HAUL	OVERHAUL NO.	ENGINE TYPE AND MODEL PT 6A-17	OPERATOR AND ACTIVITY Convair	ENGINE NO. LT 1 224 RT 1 222	This space for office use only.
	AIRCRAFT TYPE AND NO. C441R	PART NO. C441R	Do not write in this space	FAILURE DATE MONTH YEAR	
	QUANTITY	TOTAL PART(S) TIME	ENGINE TIME RUN 18:11 TOTAL 26:54 26:11	Do not write in this space	ENG. POS.

ENGINE DISPOSITION ("X" all applicable categories)

☐ ENGINE REMOVED
 ☒ RETURNED TO SERVICE
 ☐ CONVENIENCE
 ☐ ENGINE NOT REMOVED
 ☐ PERIODIC INSPECTION
 ☐ TIME

1. Model 401E (40) status

As of 3/9/65 the Convair Model 4 Charger has accumulated 17:58 flight hours since the new gear boxes were installed. The engines have given no problems during this period.

The firing equalizers have not been activated at any time since Paul Cowley left test, and it is not expected they will be on the present engines either on the ground or for flight.

Certain of the propeller controls are giving some concern. First, there is a sufficient play in the propeller control linkage which allows the rod at the forward bellcrank on the feather valve to go overcenter. To preclude recurrence of this problem Convair has added a temporary stop until Hamilton Standard comes up with a fix.

Another propeller control problem is the high wear rate on the roller slider blocks in the feed back linkage. In 26 hours of operating time the blocks have worn .057 inches. The side clearance has changed from .011" new to .066" at present.

It was also been learned that two PT6A-17 engines are expected to be shipped from Canada 3/15/65.

cc: WCC
MCL
J. Schenck

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PRATT AND WHITNEY AIRCRAFT
EAST HARTFORD, CONNECTICUT

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Mar 25, 1965

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LOCATION San Diego, Calif.		REPRESENTATIVE Marshall D. Holbrook		PWA NO. 637	
<input type="checkbox"/> LINE <input type="checkbox"/> JEFM <input type="checkbox"/> O'HAUL	OVER-HAUL NO.	ENGINE TYPE AND MODEL PT6A-17	OPERATOR AND ACTIVITY CD/Convair	ENGINE NO. Lt. X224 Rt. X222	This space for office use only.
	AIRCRAFT TYPE AND NO. Convair COIN Model 48	PART NO.	Do not write in this space	FAILURE DATE MONTH YEAR	
	QUANTITY	TOTAL PART(S) TIME	ENGINE TIME RUN 36:29 Rt. 39:01	Do not write in this space	
ENGINE DISPOSITION ("X" all applicable categories) <input checked="" type="checkbox"/> ENGINE REMOVED <input type="checkbox"/> RETURNED TO SERVICE <input type="checkbox"/> CONVENIENCE <input type="checkbox"/> ENGINE NOT REMOVED <input type="checkbox"/> PERIODIC INSPECTION <input type="checkbox"/> TIME					

1. Convair COIN Incident

Ref: C. Hogganby's telecon. 3/17/65 & my R-50 3/18/65.
On March 17, 1965 at approximately 9:05 A.M. the Convair "Charger" Model 48 COIN airplane suffered minor airframe and engine damage and considerable propeller damage during a landing on runway 27 at Lindbergh Field, San Diego. Prior to the incident the airplane had 3 successive successful landings. On the fourth landing the nose wheel collapsed due to a ballcrank on the retracting arm failure allowing the airplane nose to settle to the runway.

At the time the gear collapsed both propellers were in full reverse with power on.

The pilot, John Knobel, who suffered no injuries, stated he first realized anything was wrong was when he heard the noise of the propeller blades hitting the runway. Almost at the same time he noticed the nose pitching down. He immediately cut power and feathered the propellers. The airplane slid approx. 100 ft. on its nose.

After the incident the nose gear was extended and the airplane was towed to the hangar.

Inspection of damage showed the left engine and propeller had received the greater shock loads and consequently the heaviest damage.

The left propeller damage consisted of two blade tips bent approx. 90° over a 5 inch area and the third blade lost approx. 2 1/2 inches of tip.

The right propeller had all three blades bent approx. 2 in. from tips with bending and some scuffing.

Inspection of the left engine revealed the P/N 3007490 exhaust duct assembly, considerably buckled on the lower side. (Photo enclosed for UACI). P/N 3004322 oil pressure tube found bent. On separating the power section from the gas generator the P/N 3007717 power turbine air seal was found damaged (Photo to UACI) and evidenced of this seal rubbing on rear of P/N 3006412 power turbine, turbine disc (photo to UACI). The power turbine was found to be rubbing from 12 o'clock to approx. 3 o'clock position. No other visible damage was noted.

The engine was separated and the only visible internal damage appeared to be heavy wear on the P/N 3007717 power turbine rotor air seal.

Both engines have been reassembled and are awaiting arrival of replacement engines for transfer of required accessories. They will also be held until instructions from UACI are given as to shipping and insurance business coordinated.

cc: WCO, UACI, E. McManis

SERVICE REPRESENTATIVE'S REPORT

United Aircraft of Canada Limited
P.O. BOX 10, LONGUEUIL, QUEBEC, CANADA

REPORT NO. **FRC:**
PT6-133 DATE **April 21, 1965** PAGE **1**

LOCATION San Diego, California				REPRESENTATIVE F.R. Cowley				PWA NO.	
<input type="checkbox"/> LINE <input type="checkbox"/> JEFM <input type="checkbox"/> O'HAUL	OVER-HAUL NO.	ENGINE TYPE AND MODEL PT6A-17x	OPERATOR AND ACTIVITY Convair General Dynamics		ENGINE NO. X-221 X-223		This space for office use only. <i>Holbrook</i>		
		AIRCRAFT TYPE AND NO. Model 48	PART NO.		Do not write in this space		FAILURE DATE MONTH YEAR		
		Charger N28K							
QUANTITY	TOTAL PART(S) TIME	ENGINE TIME RUN TOTAL		Do not write in this space	ENG. POS.				
ENGINE DISPOSITION ("X" all applicable categories)									
<input type="checkbox"/> ENGINE REMOVED	<input type="checkbox"/> RETURNED TO SERVICE	<input type="checkbox"/> CONVENIENCE	<input type="checkbox"/> ENGINE NOT REMOVED	<input type="checkbox"/> PERIODIC INSPECTION	<input type="checkbox"/> TIME				

Serial X221
TT: 21.20
FT: 11.30

Serial X223
TT: 22.33
FT: 11.30
TFT: 65.25

On April 17 two Bendix DPF 2 fuel controls units were calibrated at Bendix West Coast office. The calibration generally followed a flow schedule arrived at by U.A.C.L. in order to provide sufficient fuel scheduling for 700 shaft horse power. The new high pressure release valves were installed. The data plates were changed as requested. The following units were matched: FOU serial 193898 Compensator serial 2631. These units were further coded G1 to avoid confusion. FOU serial 193819 Compensator serial 2290. These two units were further coded G2. The latter units were installed on right hand engine serial X 223.

The recalibrated fuel controls were installed on the Convair engine 18 April. Initial runs proved a calibration to be satisfactory and full stable power was easily obtainable on both engines. A moderate stall persisted off idle on the right hand engine.

In order to establish a datum point for further adjustment it was decided to wash both engines with the approved mixture. Little if any improvement in performance was obtained no improvement in the right hand engine stall was noted. The acceleration schedule on the right hand engine was reduced by using the delta P valve. The adjustment was changed from .77 to .81. Full power was obtainable at this point. Engine acceleration times were equal and 3 seconds. During engine washing it was noted that air was leaking from the diffuser case around the fuel nozzle bosses. Consequently all fuel nozzles were retorqued.

Up to this time the Bendix torque equalizers have not been used in flight. The main reason for not using this equipment was because full power was not obtainable with this system armed. The system generally cuts back without fail although not uniformly. A final solution to the problem occurred when it was decided to fit .016 snubbers in the Convair torque transmitters. This step proved the solution and full power was obtainable.

On 21 April following a high speed taxi run the model 48 Charger was flown with all systems operational. For the initial check flight the torque equalizer will not be armed for take-off or landing. The unit performed well on two or three tests during the flight. The writer feels that enough confidence will be gained in the unit within the next few flights to permit its full time operation.

Bendix West Coast office personnel have been invaluable in working with the writer and Convair on the solution of the torque equalizer problem. Test equipment has been arranged for in Burbank to flow check these units. At the writers request the Bendix people have proceeded with fixes as required to solve the major operating problem. The principle problem encountered with the equalizer units is the almost complete lack of any sort of locking devices for the various

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REPRESENTATIVE: F.R. Cowley
LOCATION: San Diego, California

REPORT NO: ERC: PT6-133
DATE: April 21/65
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if required.

During initial operation after full power was made available, both engines were overtemperated slightly during take-off. Neither engine TIT exceeded 1040°C. Following a telecon with U.A.C.L. Engineering Convair were informed that operation in excess of 1040°C would require a hot section inspection. Convair have taken the necessary precautions to avoid this occurrence and have provided adjustable throttle stops on the throttle quadrant in the cockpit. No further problems in this regard are expected.

The Convair Dynamics Group have proposed a static shake test of the model 48 aircraft. This proposal is at this point in the planning stage. The total test time would consume 84 hours. The aircraft would be shaken a maximum energy input of 1/4G with a maximum double amplitude vibration of 1/4". This testing in the 7 CPS range may consume approximately 30 hours of total. The writer informed Convair that thus far U.A.C.L. have imposed no restrictions provided the input energy level was less than 20's. However normal testing is completed over a relatively short time cycle. If any requirements exists for motoring of the engine during this vibration test, they should be made known to the writer.

Problems have persisted with the HSD propeller and linkage arrangement. Difficulty in coming out of reverse has resulted in one instance of inability to clear the runway which resulted in some airport confusion. As a result the small inner spring in the propeller which had been removed for safety in the program was reinstalled. HSD have further suggested a requirement for a sleeve to prevent spring vibration. This is not delaying the program. Phil Barnes HSD Engineering arrived at Convair to discuss the feathering problem as well as the general control irregularities. HSD have not yet provided a force break-down of the control system. However, during the discussion it was decided that considerable force could be removed from the reversing system by reworking the U.A.C.L. beta cam to remove the sliding pin and to install needle roller bearings. Convair will provide a new beta cam plate in order to incorporate this change. A suggestion to reverse the sense of the return spring on the data inter-connect cable was discarded because it did not appear fail-safe.

It is expected the test flight program will continue at Convair until the end of the first week of May. At this point the STOL phase will have been completed and the aircraft will be in "lay up" for at least three (3) weeks, in order to comply with modifications prior to high speed flight tests. The second pair of -17 engines should be available by 21 May for shipment from U.A.C.L.. To date aircraft performance both take-off and landing has been impressive. The aircraft appears to be meeting its specifications and is being flown close to gross weight. The major concern now will be to clear the high speed flight envelope.

/dr

April 27, 1965

Distribution: Airborne
J.C. Charleson

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DATE

May 5 '65

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LOCATION San Diego, Calif.		REPRESENTATIVE Marshall P. Salbrooks		PWA NO. 637	
<input type="checkbox"/> LINE <input type="checkbox"/> JEFM <input type="checkbox"/> O'HAUL	OVERHAUL NO.	ENGINE TYPE AND MODEL PT6 A-17	OPERATOR AND ACTIVITY Corvair	ENGINE NO. 11. 221 11. 223	This space for office use only.
	AIRCRAFT TYPE AND NO. Corvair CC141 model 48	PART NO.	Do not write in this space		
	FAILURE DATE MONTH YEAR				
QUANTITY	TOTAL PART(S) TIME	ENGINE TIME RUN TOTAL 11. 33:00 02:00	Do not write in this space	ENG. POS.	
ENGINE DISPOSITION (*X* all applicable categories)					
<input type="checkbox"/> ENGINE REMOVED	<input type="checkbox"/> RETURNED TO SERVICE	<input type="checkbox"/> CONVENIENCE	<input type="checkbox"/> ENGINE NOT REMOVED	<input type="checkbox"/> PERIODIC INSPECTION	<input type="checkbox"/> TIME

1. Corvair CC141 Progress.

During the latter part of last month (April) the Corvair "Charger" continued to make successful test flights with no engine problems. The flights have been exclusively STOL tests and have been very successful. Corvair states that all predicted parameters are being met without difficulty.

Testing was stopped for a few days last week while time extension on the propellers was being requested from Hamilton Standard. The time extension was needed as Corvair and Hamilton have not been able, as yet, to run vibration tests on the propellers. The time was an additional 25:00 hrs. which Corvair feels will be more than enough to complete the present scheduled tests.

At present the airplane is in the shop for modification of the main landing gear up locks. It should return to flight tests the latter part of the week.

The torque equalizer system has been activated and appears to be operating satisfactorily allowing engines to operate at full torque. However, before full power operation could be obtained the pressure in the system had to be raised to approx. 60 psi.

The other day one engine was shut down ~~and~~ in order that an inflight relight could be attempted. After shut down several attempts proved unsuccessful so a single engine landing was accomplished without incident.

After a successful ground light off it was determined that the failure to light in flight was due to insufficient electrical power to the ignition due to heavy electrical loads imposed on the system by other accessories and instrumentation.

During a routine inspection @ 17 20:00 hrs. the left glow plug Champion/W JGR2-5 of the left engine 221 was found to have fused over approx. 3/4 of the element. A bench check showed that the unfused area still operated satisfactorily, however, plug was rejected and replaced with a like plug.

The other glow plugs were removed and found satisfactory.

No further mention has been made by Corvair on the proposal of swapping left engine for the right and vice versa so presumably they

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LOCATION San Diego, Calif.		REPRESENTATIVE Marshall S. Holler		PWA NO. 637	
<input type="checkbox"/> LINE <input type="checkbox"/> JEFM <input type="checkbox"/> O'HAUL	OVERHAUL NO.	ENGINE TYPE AND MODEL PTSA-17	OPERATOR AND ACTIVITY GO/Convair	ENGINE NO. 14. 261 14. 223	This space for office use only.
	AIRCRAFT TYPE AND NO. Convair COIN model 42	PART NO.	Do not write in this space	FAILURE DATE MONTH YEAR	
	QUANTITY	TOTAL PART(S) TIME	ENGINE TIME RUN TOTAL 14.33:28 8:00	Do not write in this space	
ENGINE DISPOSITION ("X" all applicable categories)					
<input type="checkbox"/> ENGINE REMOVED		<input type="checkbox"/> RETURNED TO SERVICE		<input type="checkbox"/> CONVENIENCE	
<input type="checkbox"/> ENGINE NOT REMOVED		<input type="checkbox"/> PERIODIC INSPECTION		<input type="checkbox"/> TIME	

have dropped this idea for the present.

As of May 3, 1965 the "Charger" had 72:28 hrs. airframe time.

The engine times are as follows:

Left eng. x221 TT 33:28 over 1000° F. 31 min 50 sec.
over 975° but less than 1000° F. 36 min 50 sec.

right eng. x223 TT 33:26 over 1000° F. 18 min 37 sec.
over 975° F. but less than 1000° F. 52 min. 6 sec.

After present flight tests are completed Convair plans to lay the airplane up for a period of time (2 months) to clean it up, install second seat and in general prepare it for a demonstration tour early in a summer.

In April 13, Australia's Air Chief Marshal, Sir Fredrick Scherger visited Convair and inspected the "Charger" and was favorably impressed.

QUESTION

1. Glow Plug.

Does either PWA, E. Hartford or UACI wish the failed glow plug returned to them for inspection? I have it in my possession.

cc: WCO
F. R. McNamee
UACI

SERVICE REPRESENTATIVE'S REPORT

PRATT AND WHITNEY AIRCRAFT
EAST HARTFORD, CONNECTICUT

REPORT NO.

DATE

T-74 86 May 27 '65

LOCATION San Diego, California		REPRESENTATIVE Garsell J. Holbrook		PWA NO. 637	
<input type="checkbox"/> LINE <input type="checkbox"/> JEFM <input type="checkbox"/> O'HAUL	OVER-HAUL NO.	ENGINE TYPE AND MODEL PT6A-17x	OPERATOR AND ACTIVITY Convair Convair Dynamics	ENGINE NO. X-221 X-223	This space for office use only.
	AIRCRAFT TYPE AND NO. Model 48	PART NO.	Do not write in this space	FAILURE DATE MONTH YEAR	
	QUANTITY	TOTAL PART(S) TIME	ENGINE TIME RUN TOTAL	Do not write in this space	ENG. POS.

ENGINE DISPOSITION ("X" all applicable categories)

☐ ENGINE REMOVED
 ☐ RETURNED TO SERVICE
 ☐ CONVENIENCE
 ☐ ENGINE NOT REMOVED
 ☐ PERIODIC INSPECTION
 ☐ TIME

1. Convair CULM Program

The CULM has now made 85 flights for a total of 86:19 flight hours. The last three flights were made with the engines swapped from side to side. Results of these flights are still being analyzed. However, from talking to engineering they say this change is the best single change made to date.

Work should be complete by the end of this week. To date the results on this phase of testing has been very successful. Take-off time is now 3/7 sec. and landings are consistently being accomplished with a landing roll of less than 3 lengths of the plane. Landing speeds are approx. 55 mph.

After 85 flights and 87:41 hours of total flying the present engines have the following times:

Rt eng. x 221 50:35 hrs.
 Lt eng. x 223 50:34 hrs.

The aircraft is scheduled to enter an updating layup for approx. 3 weeks at which time the Hamilton Standard propeller vibration equipment will be installed. Tests following this lay up will cover the high speed portions of the aircraft design envelope and are estimated to require approx. 3 weeks. This series of tests are to be followed by a modification lay up to install the second pilot's controls and seat, remove instrumentation and prepare the aircraft for demonstrations by prospective customer pilots.

cc: MCC
F. Macdonald
MCC/Canada

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LOCATION GD/Convair, San Diego, Calif.		REPRESENTATIVE Marshall B. Holbrooke		PWA NO. 637	
<input type="checkbox"/> LINE <input type="checkbox"/> JEFM <input type="checkbox"/> O'HAUL	OVER-HAUL NO.	ENGINE TYPE AND MODEL PT6A-17x	OPERATOR AND ACTIVITY Convair, General Dynamics	ENGINE NO. 1-621 x-223	This space for office use only.
	AIRCRAFT TYPE AND NO. Model 40 Charger 528X	PART NO.	Do not write in this space	FAILURE DATE MONTH YEAR	
	QUANTITY	TOTAL PART(S) TIME	ENGINE TIME RUN TOTAL	Do not write in this space	
ENGINE DISPOSITION ("X" all applicable categories)					
<input type="checkbox"/> ENGINE REMOVED	<input type="checkbox"/> RETURNED TO SERVICE	<input type="checkbox"/> CONVENIENCE	<input type="checkbox"/> ENGINE NOT REMOVED	<input type="checkbox"/> PERIODIC INSPECTION	<input type="checkbox"/> TIME

1. Convair COIN Program

The above engines were received 6/15/65 and build-up was started immediately. GD/Convair expects to complete installation of engines today, 6/18/65.

Extended shake tests are expected to start early next week and GD/Convair will turn the engines/rotors as recommended by OACI.

Enclosed is a proposed schedule for airplane up through the middle of August, 1965.

cc: WCO
C. R. Schaken
OACI

MODEL 48 SCHEDULE

6-24-65

DAYS OF MONTH	SUN	MON	TUES	WED	THUR	FRI	SAT	TUES	WED	THUR	FRI	SAT	SUN	MON	TUES	WED
SHIFTS	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2
MOVE A/C TO BLDG. 69																
MLG CHANGE + H/C CLEANUP																
FUEL A/C GREEN RUNS - GEN.																
WEIGH AC - FULL FUEL																
ENGINE CALIB. RUNS																
FLT 92 - SHAKE DOWN																
LEVEL FLT HI-SPEED RUN																
AIR SPEED CALIB (HY-BY)																
DIVE - HI SPEED FLTS																
STRUCT. INSP + H.S. INSTL & C/O																
HAM. STD. IN-FLT STRESS SUR.																
HAM. STD. GRD. STRESS SUR.																
STRUCT. INSP + REMOVE H.S. EQUIP.																
ACOUSTIC TESTS																
SLOTTED FLAP + RUO. SPRING																
STALLS, FLYING QUAL, PEEF																

HOLIDAYS JULY 4 & 5

- NOTES:
1. MAIN LANDING GEAR DUE FROM KOD MEGA PM 6-24-65.
 2. REMAINING HAM STD. PARTS DUE MONDAY 6-28-65.
 3. ALL HAM. STD. STRESS SURVEYS DELAYED TO THURSDAY 7-8-65 DUE TO H.S. PERSONNEL SHORTAGE.
 4. BALLAST TO SIMULATE H.S. EQUIPMENT MASS ON GW FLTS 7-1-65 THRU 7-3-65.

6-24-65
 6-24-65
 6-24-65

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June 25, 1965

1

LOCATION GD/Convair, San Diego, Calif.		REPRESENTATIVE Marshall D. Holbrook		PWA NO. 637	
<input type="checkbox"/> LINE <input type="checkbox"/> JEFM <input type="checkbox"/> O'HAUL	OVER-HAUL NO.	ENGINE TYPE AND MODEL PT61-17x	OPERATOR AND ACTIVITY Convair, General Dynamics	ENGINE NO. X-221 X-223	This space for office use only.
	AIRCRAFT TYPE AND NO. Model 40 Charger 328E	PART NO.	Do not write in this space	FAILURE DATE MONTH YEAR	
	QUANTITY	TOTAL PART(S) TIME	ENGINE TIME RUN TOTAL	Do not write in this space	ENG. POS.

ENGINE DISPOSITION ("X" all applicable categories)

☐ ENGINE REMOVED
 ☐ RETURNED TO SERVICE
 ☐ CONVENIENCE
 ☐ ENGINE NOT REMOVED
 ☐ PERIODIC INSPECTION
 ☐ TIME

1. COIN Model 40 Schedule

The airplane has now completed 30 hrs. of shake tests and tests should be completed this week-end.

Monday the plane will be back in the assembly building for installation of main landing gear and be ready for engine runs on 6/30/65.

Enclosed is latest schedule for the airplane.

Request

1. Engine Pacelle Decals.

GD/Convair has requested four(4) new PACL decals for the pacelles. Please send me same.

cc: WCO
F H McManen
PACL

SERVICE REPRESENTATIVE'S REPORT

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EAST HARTFORD, CONNECTICUT

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Aug 6 '66

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LOCATION Convair, San Diego,		REPRESENTATIVE Kenneth D. Holbrook		PWA NO. 637	
<input type="checkbox"/> LINE <input type="checkbox"/> JEFM <input type="checkbox"/> O'HAUL	OVERHAUL NO.	ENGINE TYPE AND MODEL	OPERATOR AND ACTIVITY	ENGINE NO.	This space for office use only.
		AIRCRAFT TYPE AND NO.	PART NO.	Do not write in this space	
QUANTITY	TOTAL PART(S) TIME	ENGINE TIME RUN TOTAL	Do not write in this space	ENG. POS.	FAILURE DATE MONTH YEAR
ENGINE DISPOSITION ("X" all applicable categories)					
<input type="checkbox"/> ENGINE REMOVED	<input type="checkbox"/> RETURNED TO SERVICE	<input type="checkbox"/> CONVENIENCE	<input type="checkbox"/> ENGINE NOT REMOVED	<input type="checkbox"/> PERIODIC INSPECTION	<input type="checkbox"/> TIME

1. Convair Model 440 Charger

The following are total times on the engines installed in the Charger:

Y-221 R/H
 1000⁰ = 1 hr. 35 min. 21 sec
 970⁰ = 3 hr. 36 min. 39 sec
 RT = 32:09

X-223 R/H
 1000⁰ = 1 hr. 33 min. 13 sec
 970⁰ = 3 hr. 01 min. 35 sec
 RT = 39:31

As can be seen from the above Convair is shortly going to run out of 1000⁰ operating time and will be asking PWA for a time extension.

About August 15, NASA is going to test fly the Charger for 10 hrs. flight time to evaluate its potentials.

At present Hamilton Standard are running prop vibration and strain tests.

One engine problem of late was an oil leak in the prop oil transfer pump on Y/N 3001641, R/N 3007383 and Y/N 3001641 on engine X223. The leak was stopped by use of new "O" rings. It appeared the old oil "O" rings were not correct ones. Who made the mistake if any is not known.

cc: SAC
 JAC
 R. R. Kowalen

SERVICE REPRESENTATIVE'S REPORT

PRATT AND WHITNEY AIRCRAFT
EAST HARTFORD, CONNECTICUT

REPORT NO.

DATE

PAGE

LOCATION

REPRESENTATIVE

PWA NO.

X One <input type="checkbox"/> LINE <input type="checkbox"/> JEFM <input type="checkbox"/> O'HAUL	OVERHAUL NO.	ENGINE TYPE AND MODEL	OPERATOR AND ACTIVITY	ENGINE NO.	This space for office use only.	
		2254-17x	Convair, CO	X-221		
		AIRCRAFT TYPE AND NO.	PART NO.	Do not write in this space	FAILURE DATE	
		Model 40			MONTH	YEAR
QUANTITY	TOTAL PART(S) TIME	ENGINE TIME	Do not write in this space	ENG. POS.		
		RUN TOTAL				
		35:20				
ENGINE DISPOSITION ("X" all applicable categories)						
<input type="checkbox"/> ENGINE REMOVED	<input checked="" type="checkbox"/> RETURNED TO SERVICE	<input type="checkbox"/> CONVENIENCE	<input checked="" type="checkbox"/> ENGINE NOT REMOVED	<input type="checkbox"/> PERIODIC INSPECTION	<input type="checkbox"/> TIME	

1. Inflight Loss of Power.

Approximately 11 min. after take-off on flight #129 test pilot John Kneble reported a gradual decrease in turbine inlet temperature on the left hand engine X-221.

The prop. was feathered and engine shut down and a successful single engine landing was made at Lindbergh Field.

Post flight investigation revealed the fuel cam drive lever S/N 3009007 had become disengaged from the spline drive shaft permitting the fuel control input lever to return to idle. Further investigation showed that the lever clamp bolt S/N 06-125 had insufficient shank length. (See enclosed bolts) to engage the locking groove in the splined shaft leaving threads in loading groove area.

Corrective action was accomplished by taking an AN repair bolt with proper shank length and size to engage the splined shaft lock groove. The threaded bolt hole in the drive lever S/N 3009007 was reamed oversize 0.001 in. to accommodate the large shank size to match the shaft groove.

The above repair was accomplished on both engines. Several flights have been made since this repair with no further troubles.

cc: 570

H. H. H. H.

ACB

8

(5) (3)

Pratt & Whitney Aircraft DIVISION OF UNITED AIRCRAFT CORPORATION

U
A

CC: Mingoless
Holtzman
Holtzman
T74

6151 W. CENTURY BLVD., LOS ANGELES, CALIFORNIA 90045

TELEGRAM

OCT 21, 1965

SERVICE DEPT.

Date

WIDE CC: FORWARDED DIRECTLY TO UACL-SERVICE-M. SAUNDERS, LONGEUIL,
MONTREAL, CANADA

Further To CONVAIR CHARGER CRASH

DURING THE FLIGHT OF LT. CMDR. DAVE HARDIN USN THE 4th FLIGHT
OF 19 OCT. THE WRITER WAS PRESENT IN THE CONVAIR TOWER. THE

PILOT REPORTED COMPLETING HIS TEST AND WAS RETURNING TO LINDBERGH
FIELD.

AT THIS POINT HE SAID HE WAS SHUTTING DOWN THE LEFT ENGINE S/N
223 TO ATTEMPT AN AIR START. HE SHUT THE GAS GENERATOR DOWN

AND THEN STATED THAT THE PROPELLER HAD NOT FEATHERED. AT THIS
POINT AFTER AN ESTIMATED 30 SECS HE DID FEATHER THE PROPELLER

AND THE PROPELLER STOPPED TURNING.

HE CONTINUED FLYING FOR AN ESTIMATED 2 MINS AND THEN ADVANCED
THE PROPELLER CONTROL TO AIR START. THE PROPELLER BLADES MOVED

BUT THE PROPELLER DID NOT TURN. HE THEN STARTED THE GAS GENERATOR
NORMALLY BUT THE PROPELLER DID NOT TURN. HE ATTEMPTED TO FEATHER

AND UNFEATHER BUT ALTHO THE BLADES CHANGED PITCH THE PROPELLER
DID NOT TURN. HE REPORTED 65 PSI OIL PRESSURE BOTH ENGINES AND

70 DEGREE "C" OIL TEMPERATURE BOTH ENGINES.

AT THIS POINT IT WAS DECIDED TO MAKE A SINGLE ENGINE LANDING.
A DECISION AS TO FLAP SETTING WAS BEING MADE AS THE WRITER LEFT

THE TOWER. AT THIS POINT THE AIRCRAFT WAS DOWN WIND FOR 27 AT
LINDBERGH AT ABOUT 1,000 FEET. THE WRITER PROCEEDED TO THE

RUNWAY.

THE AIRCRAFT TURNED FINAL FOR 27 AND APPEARED TO BE SLOW WITH
UNSTEADY LATERAL CONTROL. THE GEAR WAS LOWERED AS THE AIRCRAFT

CROSSED HWY 101 WHICH IS THE THRESHOLD TO 27. THE FLAP
SETTING WAS NOT VISIBLE BUT THE LEFT PROPELLER WAS NOT

TURNING. THE LANDING GEAR WAS NOT DOWN FOR MORE THAN A FEW
SECONDS.

Pratt & Whitney Aircraft DIVISION OF UNITED AIRCRAFT CORPORATION

6151 W. CENTURY BLVD., LOS ANGELES, CALIFORNIA 90045

U
A

TELEGRAM

Date OCT 21, 1965

To

THE LANDING GEAR STARTED UP AS THE AIRCRAFT YAWED LEFT TOWARD THE RYAN PROPERTY. THE AIRCRAFT ROLLED LEFT AS THE SHIP

ATTEMPTED A GO AROUND AND CRASHED SHORT OF THE CONTROL TOWER AT LINDBERG FIELD. THE PILOT EJECTED WITH THE AIRCRAFT IN

SIGNIFICANTLY ROLLED POSITION. THE CHUTE DEPLOYED AND THE PILOT ESCAPED WITH MINOR INJURIES.

THE AIRCRAFT STRUCK APPROXIMATELY 2,000 FEET FROM THE THRESHOLD OF RUNWAY 27 AND ABOUT 300 FEET TO THE LEFT. FROM FIRST

INDICATIONS THE LEFT WING STRUCK FIRST AND THE AIRCRAFT CRASHED INVERTED AND WAS IMMEDIATELY ON FIRE. THE FIRE WAS EXTINGUISHED

WITHIN FIVE MINUTES. THE IMPACT OCCURRED AT 1525 PDT.

A PRELIMINARY INVESTIGATION OF THE CRASH SCENE REVEALED THAT BOTH ENGINES HAD SEPARATED FROM THE AIRCRAFT. THE RIGHT ENGINE

OUTER GEAR BOX SEPARATED AT THE FLANGE. ONE BLADE REMAINED IN THE HUB AND WAS IN A POSITIVE OR GOVERNING RANGE. THE

LEFT ENGINE BROKE ACROSS THE EXHAUST DUCT WITH THE GEAR BOX REMAINING INTACT. THE PROPELLER CONTAINED ALL THREE BLADES

WHICH WERE IN THE FEATHERED POSITION. BOTH GAS GENERATORS APPEARED INTACT.

THE ACCIDENT OCCURRED ON FLIGHT #196 OF N28K CHARGER AIRCRAFT. THE TT ON THE AIRCRAFT WAS 193:03. IT WAS EVALUATION FLIGHT

#18 AND THE 4th FLIGHT OF THE DAY. THE LEFT ENGINE WAS S/N223 WITH A TIME OF 42:23. THE RIGHT ENGINE S/N 224 WITH A TIME

OF 24:35.

THE ACCIDENT INVESTIGATION IS BEING CARRIED OUT BY THE LOCAL FAA UNDER THE DIRECTION OF ROBERT J. KRAUSS

~~APB~~

FRED COWLEY

FC/ec

CC: TIEDEMANN, MCGAUGHY, *Gander* PIER, MCMAKEN, HOLBROOKE

SERVICE REPRESENTATIVE'S REPORT

United Aircraft of Canada Limited
P.O. BOX 10, LONGUEUIL, QUEBEC, CANADA

REPORT NO. FRC
PT6-165

DATE
Oct. 23/65

PAGE
1 of

LOCATION San Diego, California				REPRESENTATIVE F.R. Cowley				PWA NO.			
<input type="checkbox"/> LINE <input type="checkbox"/> JEFM <input type="checkbox"/> O'HAUL	OVER-HAUL NO.	ENGINE TYPE AND MODEL YT74-CP-8 YT74-CP-10	OPERATOR AND ACTIVITY General Dynamics Convair		ENGINE NO. 223 224		This space for office use only.				
		AIRCRAFT TYPE AND NO. Charger N28K	PART NO.		Do not write in this space		FAILURE DATE MONTH YEAR				
	QUANTITY	TOTAL PART(S) TIME	ENGINE TIME RUN TOTAL	Do not write in this space		ENG. POS.		<div style="border: 1px solid black; padding: 5px;"> CC ITIEDEMAR 4 WCS 2 mabon Bulb </div>			
ENGINE DISPOSITION (*X* all applicable categories)											
<input type="checkbox"/> ENGINE REMOVED		<input type="checkbox"/> RETURNED TO SERVICE		<input type="checkbox"/> CONVENIENCE		<input type="checkbox"/> ENGINE NOT REMOVED		<input checked="" type="checkbox"/> PERIODIC INSPECTION		<input type="checkbox"/> TIME	

Serial: 223 LH
TT: 42.23

The following sketches indicate the layout of Lindberg Field relating to the crash of Convair CHARGER N28K on 19 October.

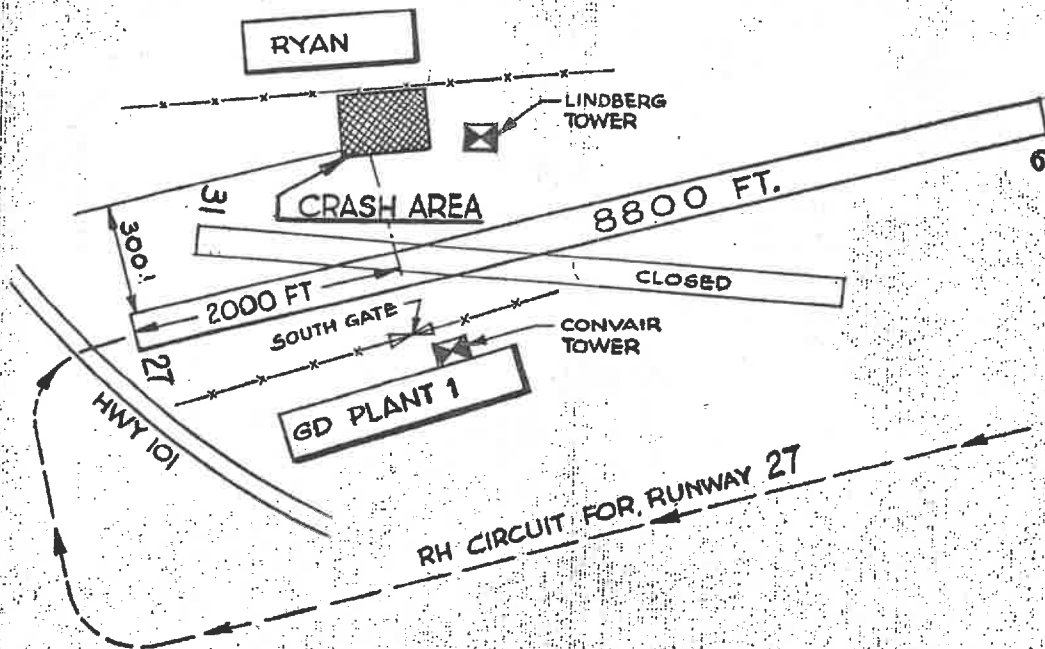
Serial: 224 RH
TT: 24.35

Total Flights
196

Total Time
193.03

Evaluation Flights
18

Evaluation Time
21.25

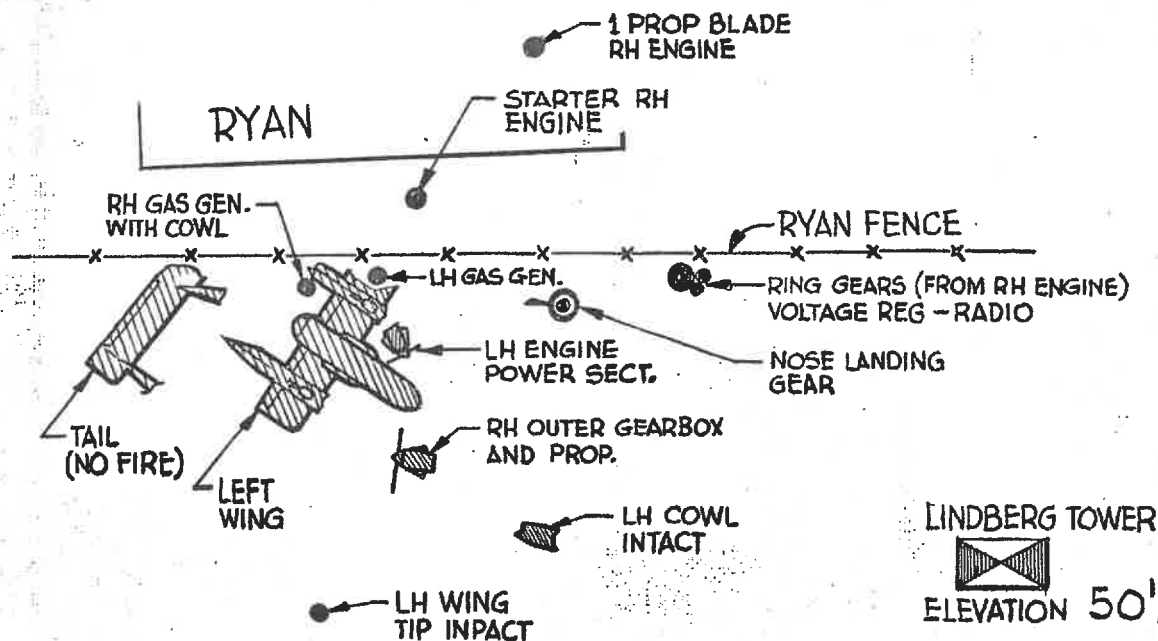


NOV 11 1965

SERVICE REPRESENTATIVE'S REPORT

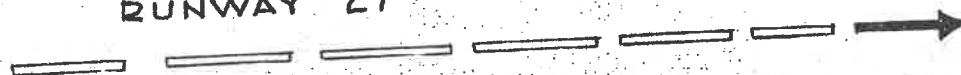
REPRESENTATIVE: F.R. Cowley
LOCATION: San Diego, California

REPORT NO: FRC: PT6-165
DATE: Oct. 23/65
PAGE NO: 2



CONSTRUCTION AREA

RUNWAY 27



SERVICE REPRESENTATIVE'S REPORT

REPRESENTATIVE: F.R.Cowley

LOCATION: San Diego, California

REPORT NO: FRC: PT6-165
DATE: Oct. 25/65
PAGE NO: 3

Flight number 196 (Military Evaluation Flight 18) was dispatched normally at about 14.00 PDT from Lindberg Field. No Maintenance other than fuel had taken place between the previous flight. No engine items had been reported during the three flights flown on 19 October prior to flight 196. The aircraft carries sufficient fuel for at least two hours plus adequate reserves.

Lt. Commander Dave L. Hardin USN Patuxent River MD had first flown the aircraft 12 October and had acquired a total flight time of about 4 hours 30 minutes prior to flight 196. He had been thoroughly checked out in UACL Kingair CF-UAC. During his check ride in the Kingair he carried out at least three air starts and flew that aircraft as slow as 90 KIAS. He had examined single engine control and VMC on the Charger aircraft with the engine at minimum power and the propeller feathered. He indicated to be familiar with engine operation and did not raise any questions concerning engine operation with the writer prior to his last flight.

The pilot departed with a fairly lengthy flight plan. The normal flights lasted generally from one hour to one hour and a half. At about 15:12 the pilot reported to Convair 1 (Tower) on test frequency 123.4 that he had completed his flight plan and was returning to Lindberg. He had not completed all the items on his flight plan which was not unusual because some of the flight plans were a bit ambitious. No irregularities were reported at this time. He had been working the 10,000 foot level and from the test area it would be normal to expect the aircraft to be at the Convair ramp within 10 minutes. R. McGeary then placed two routing phone calls from the tower, one to alert the fire trucks and the second to alert the crew to standby to fuel the ship. Capt. J. Stroface USAF Edwards was standing by in his flight gear to take the next flight. It would have been the first day that five flights were possible.

At approximately 15.14 Hardin reported that he had shut down the left hand engine, that the propeller had not feathered automatically and that he had then feathered the left hand propeller. Al Cappellin, working the radio, requested a position report. Hardin reported he was in the vicinity of Lindberg at about 2,000 feet on a single engine with the left engine properly shut down and the propeller feathered.

The time interval from the radio transmission indicating completion of the flight plan to the termination of the flight was some 13 minutes. The aircraft flew normally for 7 or 8 minutes with the left engine inoperative during which time Hardin selected air start which discharged the accumulator and unfeathered the propeller. The propeller failed to rotate although it responded to command and assumed the fine pitch position. During this period the gas generator was started normally. The gas generator speed was reported as Ng-53% at idle with the main oil pressure at Lp-65psi and oil temperature Lt-70°C. The propeller failed to turn although it apparently was still responding to feather-unfeather commands due to the action of the accumulator.

SERVICE REPRESENTATIVE'S REPORT

REPRESENTATIVE: F.R.Cowley
LOCATION: San Diego, California

REPORT NO: FRC:PT6-165
DATE: Oct. 23/65
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The CHARGER aircraft system made use of a high pressure hydraulic system powered by a separate pump driven by each engine gas generator. Although this pump satisfied the torque and moment requirements of its driving pad, it had an unusual power demand curve and the drag offered by the pump was such that the gas generator run down time from idle was in the order of 22 seconds. If the engine was shut down in flight with the propellor feathered, the gas generator would not rotate, regardless of air speed. This fact was observed early in the program and the air shut-down procedure always followed feathering of the propellor.

The air start procedure involved selection of ignition 'on' and following a 4 or 5 second period the engagement of air-start on the propellor condition lever and selection of starter 'on'. The start cycle required only a few seconds to complete.

When it had become readily apparent that the engine had in fact failed the gas generator was shut down and preparation was made to execute a single engine landing. This would have been the third such incident during operation of the aircraft. The two previous single engine landings, one with each engine, had been executed by Convair test pilots Auten and Knebel without incident. The writer left the Convair tower when Hardin switched to Lindberg tower frequency and no additional direct communication with the aircraft was possible. At this point, about 3 minutes before the accident, the aircraft was downwind for runway 27 at about 1000 feet.

The writer arrived at the south gate of Convair as the aircraft turned a short final. The aircraft appeared to be flying slower than normal and some slight roll was observed. The left propellor was observed to be stopped and properly feathered. The aircraft was at about 100 feet altitude as it crossed the threshold of runway 27.

Apparently Hardin had notified Lindberg tower that he would not lower the gear until he was sure he had it 'made' and had crossed the end of the runway. The landing gear was extended on schedule. At this point the situation appeared well in control; the aircraft was sinking in a flat or three point attitude lined up well with the runway. The aircraft was less than 50 feet from the runway.

At this point the gear was observed to commence retracting; the aircraft yawed left. Apparently power was added to the right engine and the aircraft commenced to roll left. Hardin ejected with the aircraft slightly nose up and 30 to 45 degree rolled left. The Douglas C-5 seat pushed him through the canopy and in a more or less flat trajectory and his seat was seen to separate and the parachute deploy. Hardin landed on the roof of a Ryan hangar and waved that he was okay. The aircraft crashed and burned against the Ryan fence about 6 seconds after crossing the end of the runway.

SERVICE REPRESENTATIVE'S REPORT

REPRESENTATIVE: F.R.Cowley
LOCATION: San Diego, California

REPORT NO: FRC:PT6-165
DATE: Oct. 23/65
PAGE NO: 5

The writer was on the scene within two minutes after the crash; following the fire trucks in the Convair station wagon. The CHARGER broke apart and exploded on impact and was totally consumed by fire. The fire was extinguished within 5 minutes. The aircraft probably contained 140 gallons of JP-4 at the time of impact.

The crash occurred at 15.25 PDT on 19 October. There were no injuries to any third party. The writer first called UACL at 15.40 PDT from the Ryan facility.

The writer returned to the scene about an hour later and was joined by M.Holbrooke and H.McMaken, P&W Reps. At that time, the enclosed sketch of the debris was made. Mr. R.Krass of the FAA directed the fencing off of the area and the posting of guards until action could be initiated the following morning. The enclosed photographs of the crash area were taken both immediately following the accident and the following day after the foam had been removed.

The photographs and sketch generally describe the crash area as to location of the debris. The left engine(feathered on impact)broke free from its nacelle and was found in front of the right nacelle. The power section separated completely, and intact, from the gas generator and was found adjacent to the latter. The propellor hub was intact and attached to the prop shaft. The prop blades were feathered. The prop hub was found in relatively good shape.

The right engine gas generator remained generally in its nacelle. The outer reduction gearbox separated at the mounting flange and came to rest forward of the left nacelle area. The first stage reduction ring gears and torquemeter gearing were thrown into the area where the aircraft nose ballast and equipment were found. The propellor hub was intact and attached to the prop shaft. One blade remained in the hub and was in fine pitch. Of the other two blades, one was found in the wreckage and the other landed on the roof of part of the Ryan plant some 100 yards distant.

The CHARGER aircraft carried civilian rather than military registration. As a result, the local FAA office became involved in the investigation. Robert J.Krass is a General Aviation Operations Inspector for the FAA. He stated his objective toward the investigation rather simply. His was to determine that the pilot was properly licensed, that the aircraft was properly dispatched and in airworthy condition, and from eyewitness reports and other evidence draw a conclusion as to the cause of the accident. Following a description of engine type provided by the writer, Krass stated that because the engine did not carry a certificate the engine investigation would assume a minor role in his investigation. He also implied that his conclusions would not await an engine report.

Mr. Famme, VP Convair, immediately appointed an investigation board headed by R.E.Strayer. The other members were H.R.Auten, R.G.McGeary and F.Chambers. These people would carry out the main investigation the results of which, it is expected, will remain Convair confidential data.

SERVICE REPRESENTATIVE'S REPORT

REPRESENTATIVE: F.R.Cowley
LOCATION: San Diego, California

REPORT NO: FRC:PT6-165
DATE: Oct. 23/65
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Finally the United States Navy appointed Capt. W.R.Stevens to investigate on behalf of Buweps. His report would include a transcript of the interview with the pilot.

The day following the accident, 20 October, the investigation resumed at the site. Krass almost immediately released the debris to Convair. All of the material was removed from the scene and transported to building 69 at Lindberg Field. The tape and film was removed from the aircraft and sent for processing. The pilots instrument panel provided little data from flight instruments but it was generally agreed that the right engine was at high power and the left engine stopped at impact. The landing gear handle was selected 'up'; the flap position was not discernable. The only instrument on the photopanel that indicated impact conditions was the right engine turbine temperature at 950°C or equivalent to 550 SHP. The photopanel itself was in good condition.

Although information was obtained from both the film and tape it pertained only to the early part of the flight.

The debris was collected and sorted in the hangar. The props and prop controls were removed from the gearboxes. Generally the heavy accessories had parted at their mounting flanges on the accessories' gearbox; the starter, FCU and oil pumps are included. Most of the engine mount bolts had pulled cleanly from the gas generator cases. The power section accessories were generally intact.

The engines were released by Convair and were in the process of being crated when a Mr. Gale T.Cornwell arrived and announced that as the new owners of the aircraft, Lloyds Assurance Company of London had more than a passing interest in the disposal of the debris. The one engine was finally released to UACL on the condition that reports be made available to Lloyds and that a representative of Convair be present to witness the disassembly. The writer signed the conditions on behalf of UACL.

Engine serial 223 arrived at UACL 26 October for investigation.

FRC:w1
Dated: November 1/65
Distribution: *A*